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MCAS EL TORO
SSIC # 5090.3

CLEAN II TRANSMITTAL/DELIVERABLE RECEIPT

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Mr. Richard Selby, Code 0233.RS (O)
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1220 Pacific Highway
San Diego, CA. 92132-5187

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FROM: 
D. K. Cowser, Project Manager

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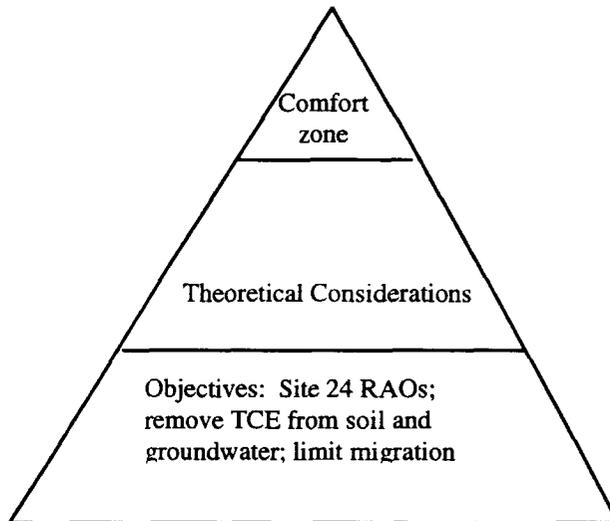
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MEETING MINUTES

Meeting Subject: Planning Meeting for Future Activities at Site 24 MCAS El Toro	Meeting Date: 06 November 1996 Meeting Time: 09:30 Meeting Place: Bechtel, San Francisco Meeting Notes Prepared By: Patrick Brooks			
Attendees: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; vertical-align: top;"><u>SWDIV</u> Bernie Lindsey Andy Piszkin</td> <td style="text-align: center; vertical-align: top;"><u>Bechtel</u> Patrick Brooks Dante Tedaldi</td> <td style="text-align: center; vertical-align: top;"><u>Other</u> Sherrill Beard, DTSC John Dolegowski, CLEAN I Glenn Kistner, US EPA Herb Levine, US EPA Tayseer Mahmoud, DTSC</td> </tr> </table>		<u>SWDIV</u> Bernie Lindsey Andy Piszkin	<u>Bechtel</u> Patrick Brooks Dante Tedaldi	<u>Other</u> Sherrill Beard, DTSC John Dolegowski, CLEAN I Glenn Kistner, US EPA Herb Levine, US EPA Tayseer Mahmoud, DTSC
<u>SWDIV</u> Bernie Lindsey Andy Piszkin	<u>Bechtel</u> Patrick Brooks Dante Tedaldi	<u>Other</u> Sherrill Beard, DTSC John Dolegowski, CLEAN I Glenn Kistner, US EPA Herb Levine, US EPA Tayseer Mahmoud, DTSC		
Additional Distribution: File				

Pat opened the meeting by reviewing the teamwork pyramid that had been described in previous El Toro meetings. The teamwork pyramid is illustrated below:



The base of the pyramid is the most important. It is the foundation of the project and is comprised of the project objectives that all parties agree upon. The second tier is comprised of theoretical considerations and data interpretation. Consensus here will probably require discussion among the technical specialists from the Navy and regulatory agencies. When differences of opinion occur (and it is expected that this will happen), a mechanism for resolution of the difference is required. A number of options were discussed and Herb said that it was very important to have a mechanism to resolve differences based on his past experience with the pilot tests. Andy agreed to take this as his action item. The final tier is the comfort zone. If the team

MEETING MINUTES (Continued)

consistently keeps the objectives in mind, and technical differences are resolved per Andy's action item, the comfort zone will follow and the project will be a success.

U.S. EPA and DTSC comments on Site 24 FS

Pat then passed out a detailed agenda for the meeting and stated that the purpose of the meeting was to review regulatory comments of the Site 24 Feasibility study and discuss future work. Pat said he had identified two major groups of FS comments based on his review of the U.S. EPA and DTSC comments. The first group contained site characterization issues, and the second involved the groundwater model. The site characterization presented in the Phase II FS was a summary of the Phase II results and did not include new interpretation of the data. Pat said that he understood that the BCT recognized data gaps in the Building 296/297 area, but that the data gaps would be addressed during the remedial design phase - not as part of the Phase II FS. These data could be collected during the proposed groundwater remediation pilot testing and used to fine tune the site conceptual model.

Pat suggested that refinement of the groundwater model would also be more effective after collecting new data during groundwater remediation pilot testing.

The U.S. EPA solid model (Earth Vision) was discussed, and Pat pointed out that the three-dimensional model failed to connect the groundwater plume beneath the hangar buildings to the hotspot at Site 9. Pat stated that a 3-D model was experimented with during the Phase II RI, but CLEAN II felt there was not sufficient data for computer-aided contouring, and chose instead to prepare cross-sections based on potential release mechanisms and contaminant fate and transport. A three-dimensional model could be a useful tool during the design phase, and additional data collected during the pilot testing could be added to the model.

Overview of Proposed Groundwater Remediation Pilot Testing

The proposed groundwater remediation pilot test location is within the groundwater hot spot beneath the Building 296/297 area. Degreaser pits were located in each of these buildings. Connection of degreasers to storm drain lines was documented in the Phase II RI (please see attached figures). The highest concentrations of TCE in groundwater were also located beneath these buildings. The pilot testing objectives address many of the agency comments on the Site 24 FS, in addition to focusing Site 24 groundwater remedial design. The pilot test objectives are the following:

1. Work with the BCT to lay out a framework by which a well field capable of capturing TCE-contaminated groundwater within the groundwater hotspot can be designed and constructed. The general framework proposed is similar to that used during the Phase II RI. Rapid data analysis and interpretation will be performed in the field and presented to the BCT on a regular basis. This will facilitate BCT input to include planning documents, well design and locations, and necessary observation and monitoring wells.
2. Install groundwater extraction wells only within the vertical interval of the shallow groundwater unit that is contaminated. This will reduce the amount of water to be treated and injected. It will also reduce the potential for cross-contaminating deeper groundwater

MEETING MINUTES (Continued)

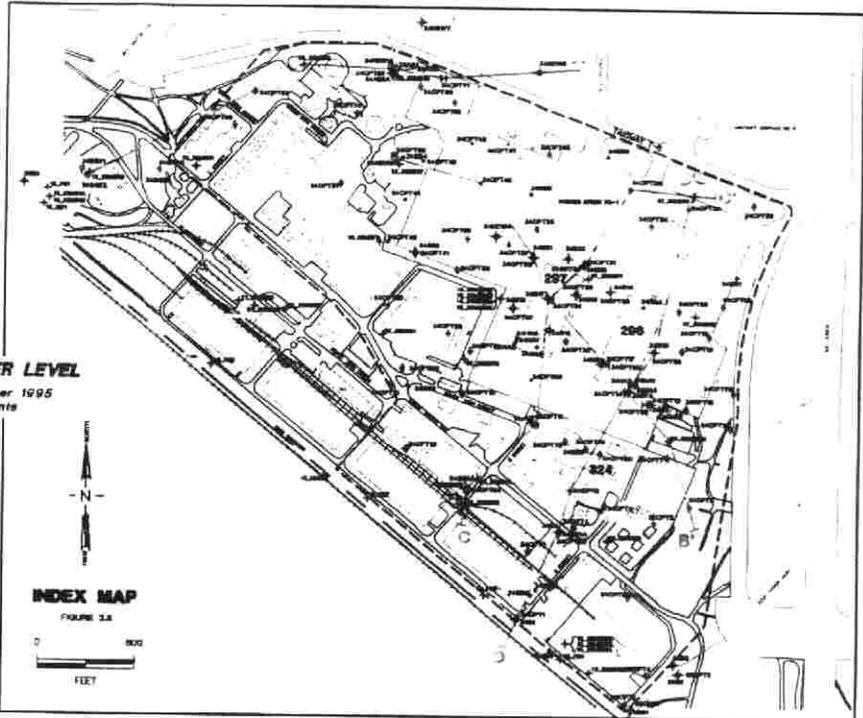
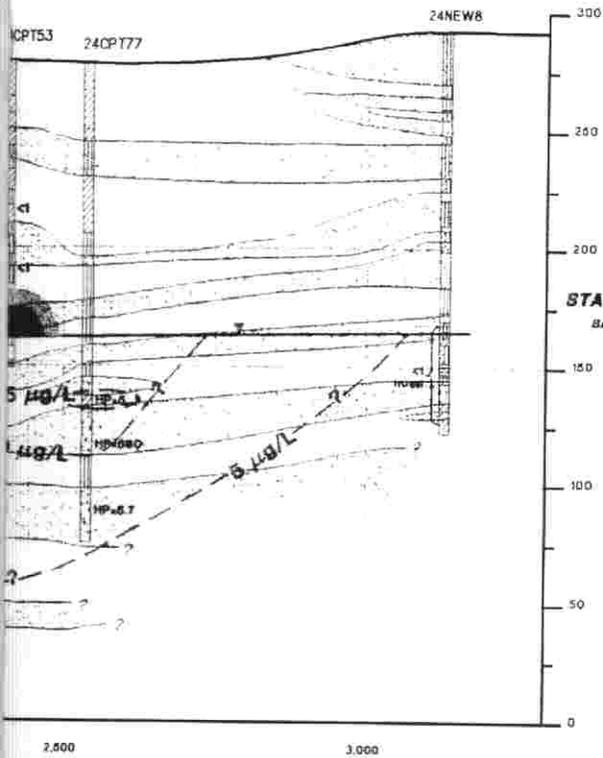
- units. HydroPunch sampling can be used to help identify the depth that extraction and monitoring wells are drilled.
3. Within the framework of Objective No. 1, install aquifer test observation wells that will also serve as groundwater monitoring wells. The new monitoring wells will help fill the data gaps that currently exist in the Building 296/297 area.
 4. Synthesize existing and newly collected data to refine our understanding of TCE within the groundwater hot spot and conduct remedial design work accordingly.
 5. Perform long-term aquifer tests and collect data related to aquifer properties. These data are necessary for the design of an efficient well field. This data may also be used to refine the existing groundwater flow computer model. Once aquifer properties have been estimated, the extraction wells should be operated in the vacuum-enhanced mode.
 6. Operate the groundwater extraction wells using vacuum-enhancement to evaluate the actual operation of the remedial system (versus operation to estimate aquifer properties). Dewatering of the shallow groundwater unit in conjunction with vapor extraction will remove adsorbed VOCs from the aquifer skeletal material and provide data to assess the potential presence of residual DNAPL.
 7. Utilize injection wells for flushing and to limit vertical migration of TCE-contaminated groundwater. Investigate the potential for scaling and biofouling of injection wells.
 8. Evaluate groundwater treatment options such as air stripping, and activated carbon.

Herb stated that he would like to review the aquifer pilot test report before he takes part in a technical discussion of the groundwater remediation pilot test work plan. Pat said that the pilot test report would be issued by mid-November. Pat provided Herb with draft copies of aquifer test plots.

It was agreed that HydroPunch sampling would be used to help place extraction and injection wells. The first well location proposed was in the Building 296 area. Herb and Sherrill agreed to the concept, and again stated that a mechanism to resolve technical differences was needed to ensure the project's success.

Herb, Tayseer, and Sherrill agreed that Site 24 FS comments regarding refinement of the site conceptual model and groundwater model could be addressed after analyzing groundwater remediation pilot test data. Site 24 FS comments regarding the conceptual model will be addressed in the Groundwater Remediation Pilot Test Report. Comments regarding the groundwater model will be addressed during the design phase of the project. The groundwater model will be modified to incorporate regulatory comments and the results of the pilot test. It is anticipated that the groundwater model will be used to monitor and fine-tune the system's performance.

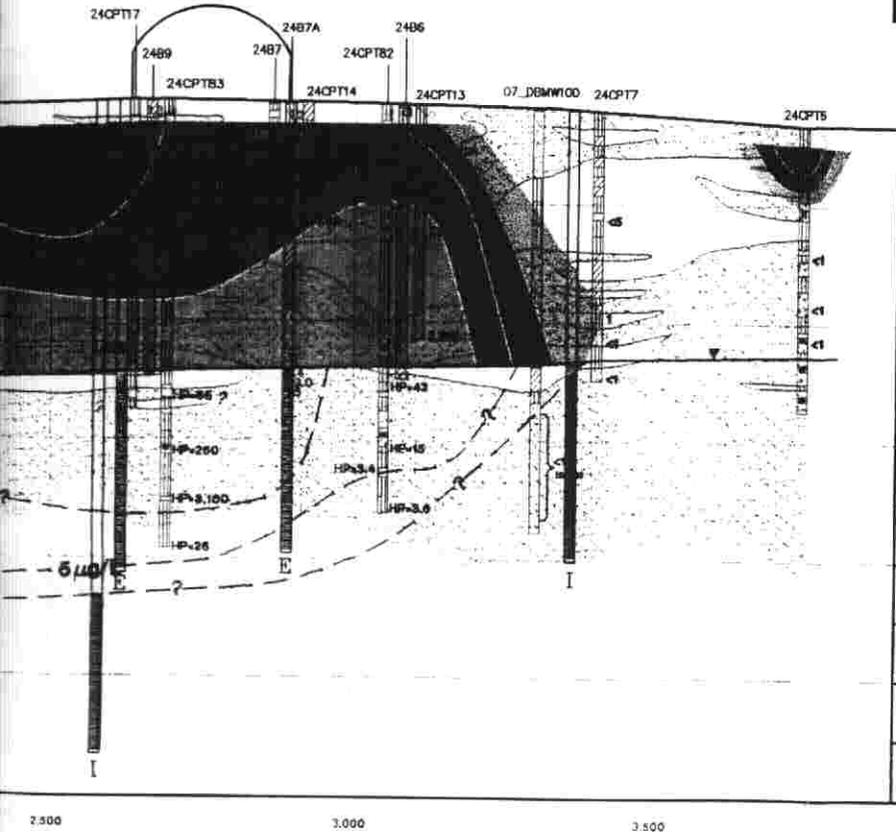
**EAST
A'**



STATIC WATER LEVEL
Based on October 1995
Measurements

INDEX MAP
FIGURE 3.8
0 500
FEET

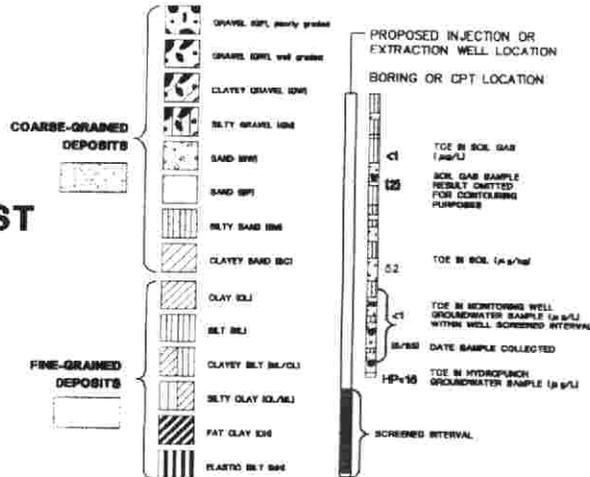
**Building
296**



**SOUTHEAST
B'**

STATIC WATER LEVEL
Based on October 1995
Measurements

LEGEND



TCE CONCENTRATIONS IN SOIL GAS



NOTE: SURFACE EXPRESSION OF SOIL GAS CONCENTRATIONS BASED ON PHASE I SOIL GAS SURVEY RESULTS

STATO WATER LEVEL (ft. MSL) BASED ON OCTOBER 1995 MEASUREMENTS

APPROXIMATE VERTICAL EXTENT OF TCE IN GROUNDWATER (µg/L)

PROPOSED INJECTION WELL

PROPOSED EXTRACTION WELL

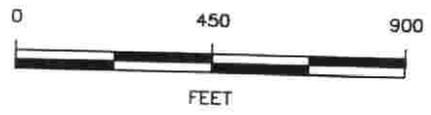
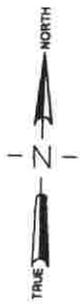
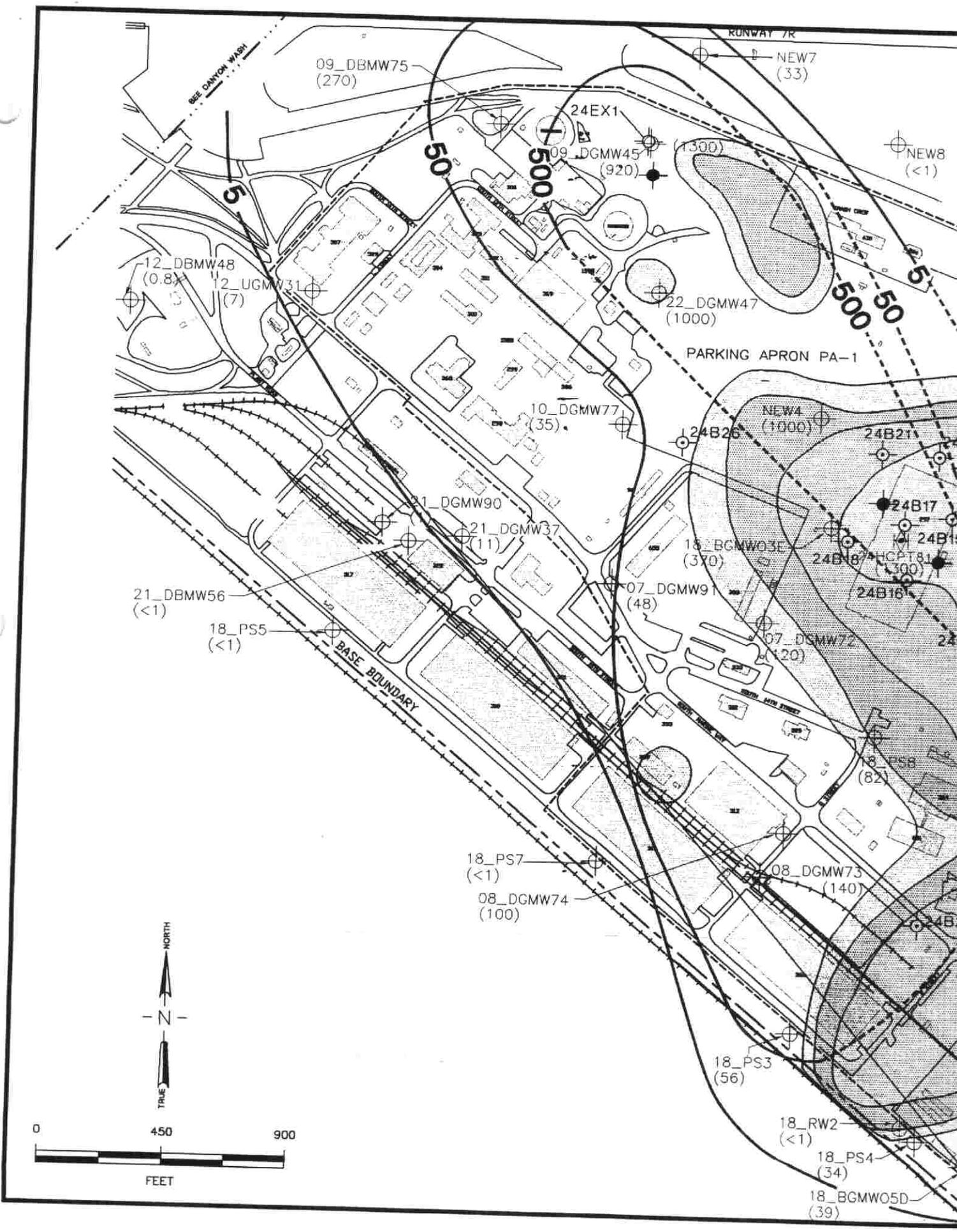
VERTICAL EXAGGERATION
4:1

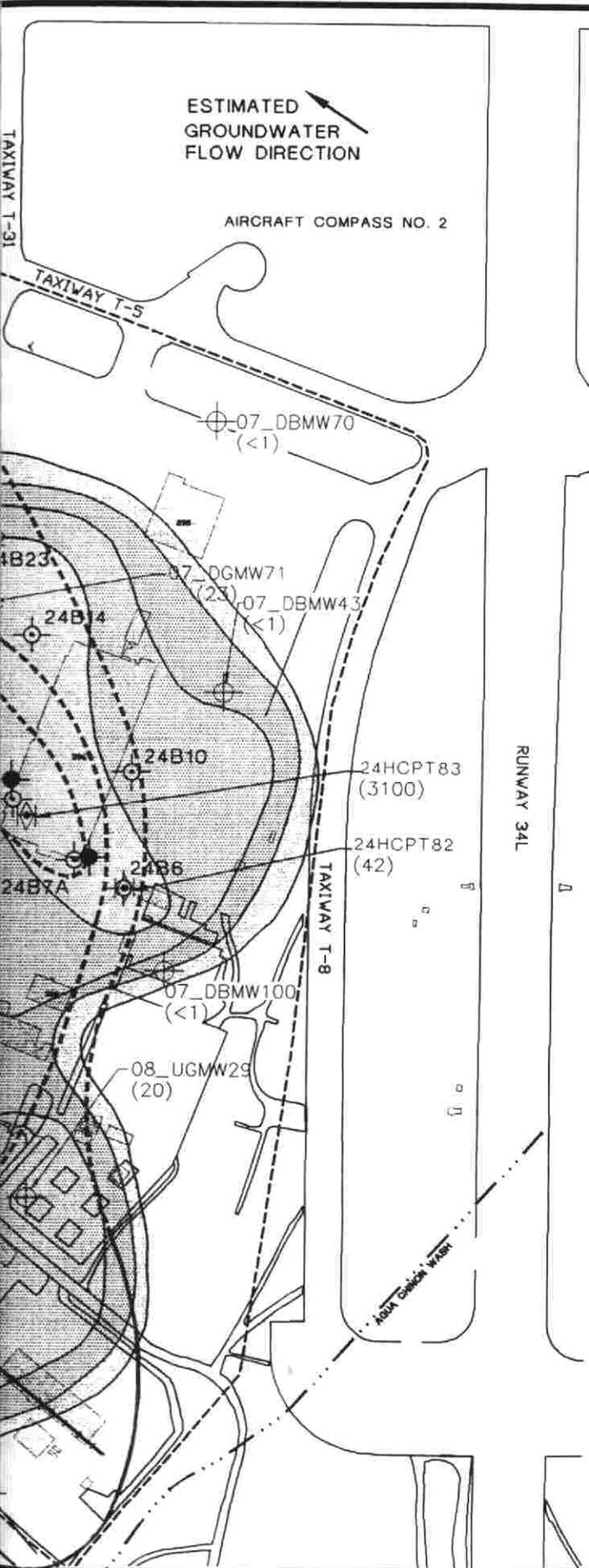


Proposed Groundwater Remediation Pilot Testing
Figure 1

Cross Sections A-A' and B-B'
Analytical Results For TCE

MCAS, El Toro, California





LEGEND

- 313 BUILDING OR PAD
- STREAMS OR WASH
- IMPROVED ROADS
- RAILROAD
- PHASE II UNIT BOUNDARY
- BASE BOUNDARY
- 500-** ISOCONCENTRATION CONTOUR OF TCE IN GROUNDWATER ($\mu\text{g/L}$) (FROM SAMPLES COLLECTED JULY 1992 TO JANUARY 1993. RESULTS IN TABLE C-1 PHASE I T.M.)
- 500--** REDEFINED ISOCONCENTRATION CONTOUR OF TCE IN GROUNDWATER ($\mu\text{g/L}$) (FROM PHASE II RI SAMPLES COLLECTED OCTOBER 1995 TO JANUARY 1996)

SOIL GAS CONCENTRATIONS NEAR WATER TABLE:

- 1.0 TO 5.0 $\mu\text{g/L}$ TCE
- 5.0 TO 50.0 $\mu\text{g/L}$ TCE
- 50.0 TO 500.0 $\mu\text{g/L}$ TCE
- GREATER THAN 500.0 $\mu\text{g/L}$ TCE

EXISTING:

- MONITORING WELL (WITH HIGHEST TCE CONCENTRATION IN $\mu\text{g/L}$)
- AIR SPARGING WELL
- HYDROPUNCH SAMPLE (WITH HIGHEST TCE CONCENTRATION IN $\mu\text{g/L}$)
- SOIL VAPOR EXTRACTION WELL

PROPOSED:

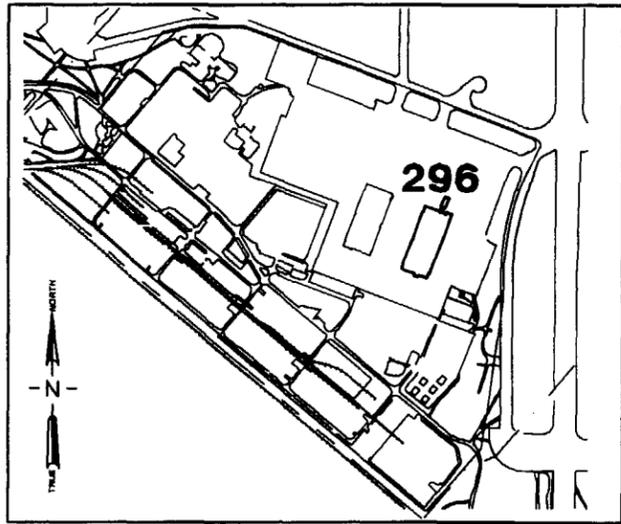
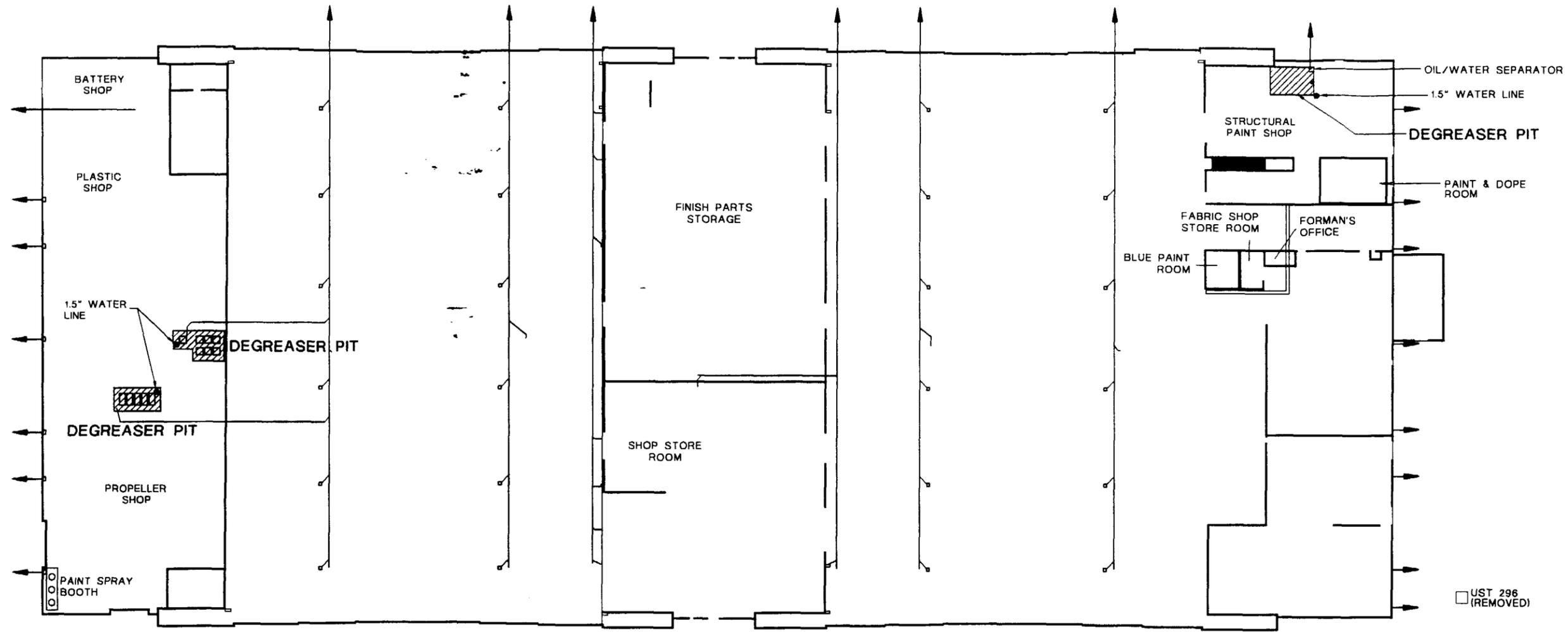
- EXTRACTION AND/OR INJECTION WELL

Proposed Groundwater Remediation Pilot Testing

Figure 2

MCAS, El Toro, California

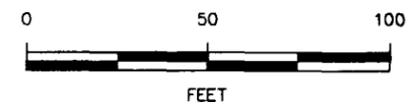
	<p>Bechtel National, Inc. CLEAN II Program</p>	<p>Date: 11/4/96 File No: 073H1790 Job No: 22214-073 Rev No: A</p>
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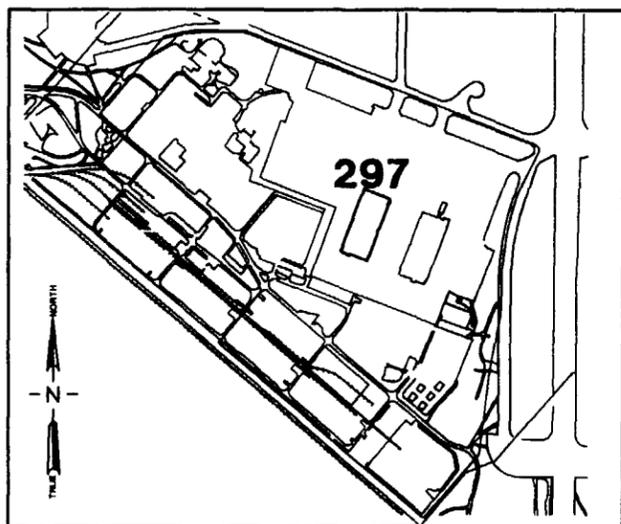
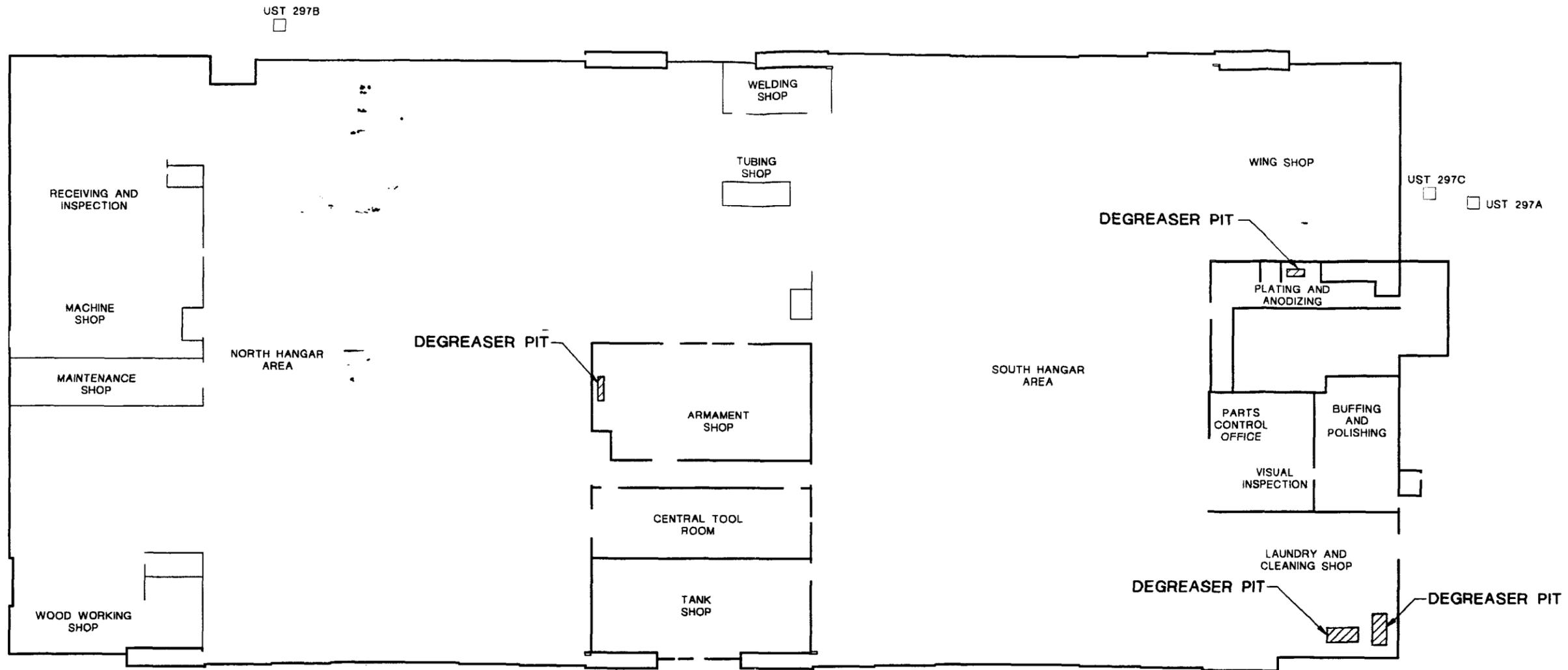
NOTE:
 THE FEATURES DEPICTED ON THIS FIGURE WERE TAKEN FROM A NAVY DOCUMENT, BUREAU OF AERONAUTICS ENGINEERING DRAWING 311486, DATED DECEMBER 22, 1944. THIS DRAWING WAS PROVIDED COURTESY OF THE MCAS EL TORO PUBLIC WORKS CENTER. DRAWING 311486 IS TITLED DELETION OF DISPENSARY CHANGES IN GROUND FLOOR PLUMBING. IT SHOWS THE LOCATIONS OF DEGREASER PITS AND SUBFLOOR STORM DRAIN LAYOUT THAT WAS DESIGNED INTO BUILDINGS 296 AND 297.

LEGEND

- ← 4" STORM DRAIN (ARROW SHOWS DIRECTION OF FLOW) SEE FIGURE 3.1 FOR STORMDRAIN NETWORK
- 1 1/2" COLD WATER DROP TO DEGREASER
- UST 296 (REMOVED)
- UNDERGROUND STORAGE TANK



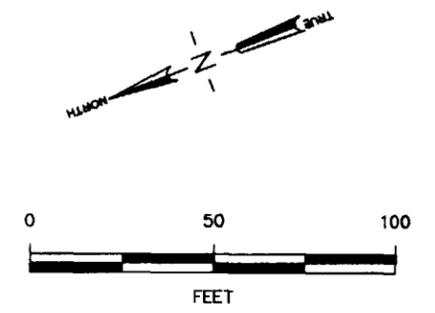
Phase II RI Report Figure 3-2 Floor Plan of Hangar Bldg (296) Site 24	
MCAS, El Toro, California	
Bechtel National, Inc. CLEAN II Program	Date: 2/6/96 File No: 073L0305 Job No: 22214-073 Rev No: D



NOTE:
 THE FEATURES DEPICTED ON THIS FIGURE WERE TAKEN FROM A NAVY DEPARTMENT, BUREAU OF AERONAUTICS ENGINEERING DRAWING 311,496, DATED MAY 30, 1944. THIS DRAWING WAS PROVIDED FOR REVIEW COURTESY OF THE MCAS EL TORO PUBLIC WORKS CENTER.
 DRAWING 311,496 IS TITLED GROUND FLOOR PLAN. IT SHOWS THE LOCATIONS OF DEGREASER PITS AND GENERAL USE, HOWEVER, IT DOES NOT SHOW THE SUBFLOOR STORM DRAIN LAYOUT. THE ORIGINAL FLOOR PLAN DOES REFER TO AN ACCOMPANYING FLOOR PLAN, DRAWING 311,498 FOR ADDITIONAL DETAILS INCLUDING PLUMBING. DRAWING 311,498 WAS NOT AVAILABLE FOR REVIEW.

PLEASE REFER TO FIGURE 3-2, FLOOR PLAN OF BUILDING 296, WHICH DOES INCLUDE THE SUBFLOOR STORM DRAIN LAYOUT. BUILDINGS 296 AND 297 WERE BUILT DURING THE SAME PERIOD AND ARE ASSUMED TO BE OF SIMILAR CONSTRUCTION. THEREFORE, BUILDING 297 IS ASSUMED TO HAVE STORMDRAINS PLUMBED INTO THE DEGREASER PITS THAT DISCHARGE TO THE MAIN STORMDRAIN NETWORK, SEE FIGURE 3-1. BUILDING 297 IS ALSO ASSUMED TO HAVE 1.5" COLD WATER DROP LINES PLUMBED INTO THE DEGREASER PITS.

LEGEND
 UST 297B □ UNDERGROUND STORAGE TANK



Phase II RI Report Figure 3-3 Floor Plan of Hangar Bldg (297) Site 24	
MCAS, El Toro, California	
 Bechtel National, Inc. CLEAN II Program	Date: 2/6/96 File No: 073L0306 Job No: 22214-073 Rev No: D



LEGEND

-  BUILDING OR PAD
-  STREAMS OR WASH
-  IMPROVED ROADS
-  UNIMPROVED ROADS
-  RAILROAD
-  PHASE II UNIT BOUNDARY
-  FENCE
-  BASE BOUNDARY
-  STORM DRAIN CONVEYANCE SYSTEM (AGUA CHINON WASH)
-  STORM DRAIN CONVEYANCE SYSTEM (BEE CANYON WASH)
-  INDUSTRIAL WASTEWATER SEWER LINE
-  UNDERGROUND STORAGE TANK (USTs)
-  PRE-1975 WASTE OIL UST INSTALLED PRIOR TO TERMINATION OF USE OF SOLVENTS AND CLOSE TO SHALLOW SOIL-GAS PLUME
-  PHASE II SOIL GAS SAMPLE LOCATIONS

SOIL GAS CONCENTRATIONS

-  1.0 TO 5.0 µg/L
-  5.0 TO 50.0 µg/L
-  50.0 TO 500.0 µg/L
-  GREATER THAN 500.0 µg/L

**Phase II FS Report OU-2A
Figure 1-17**

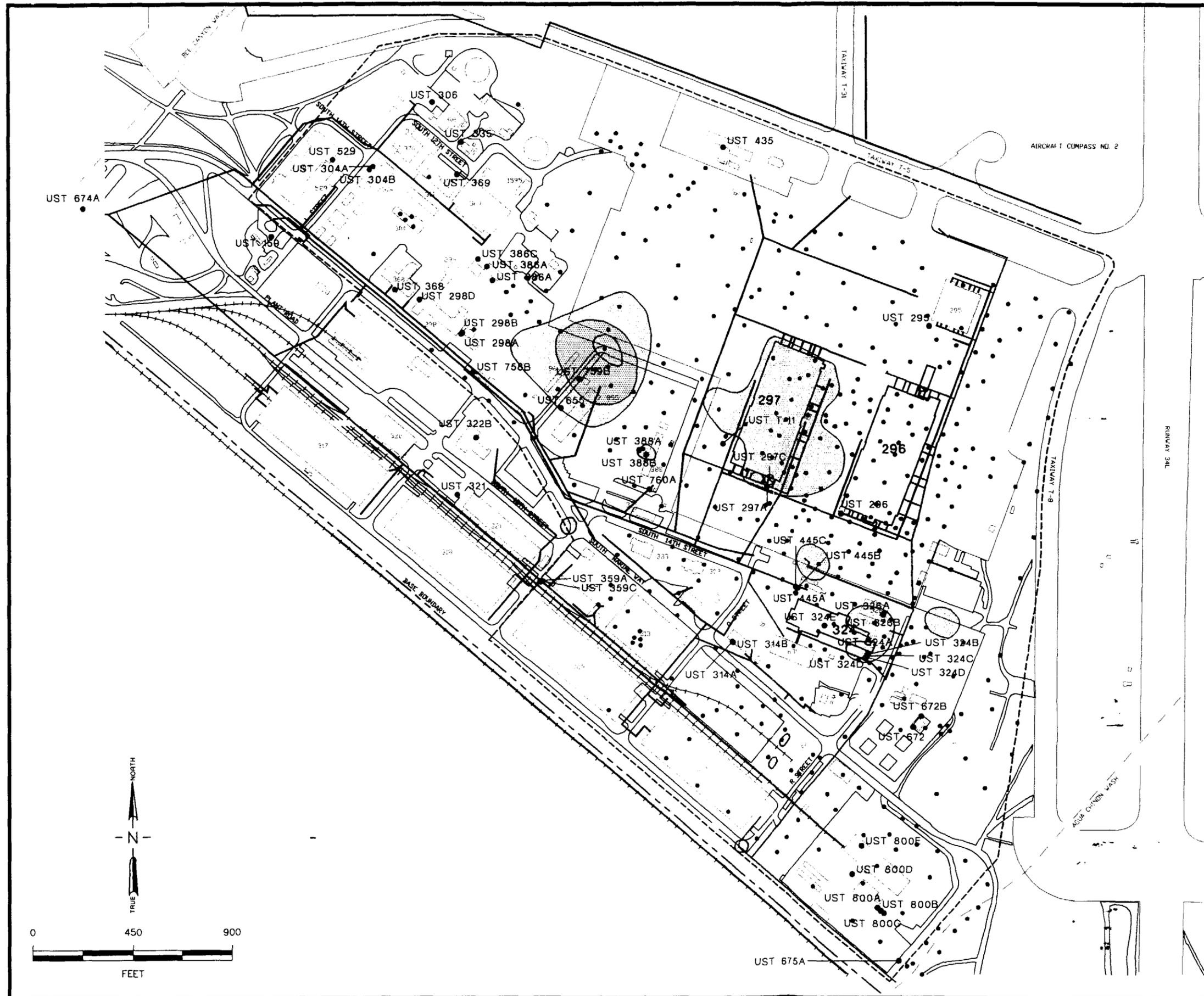
Deep Soil Gas Results - TCE
Site 24 - VOC Source Area

MCAS, El Toro, California

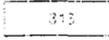
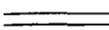


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Date: 11/4/96
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Job No: 22214-073
Rev No: A

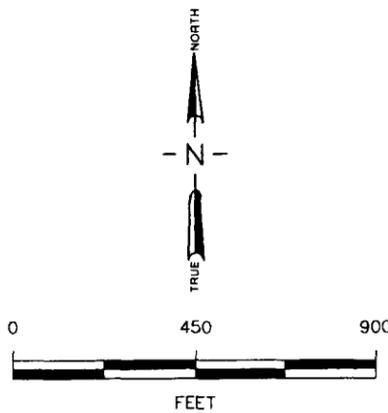


LEGEND

-  BUILDING OR PAD
-  STREAMS OR WASH
-  IMPROVED ROADS
-  UNIMPROVED ROADS
-  RAILROAD
-  PHASE II UNIT BOUNDARY
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-  UNDERGROUND STORAGE TANK (USTs)
-  PRE-1975 WASTE OIL UST INSTALLED PRIOR TO TERMINATION OF USE OF SOLVENTS AND CLOSE TO SHALLOW SOIL-GAS PLUME
-  PHASE I SOIL GAS SAMPLE LOCATION

SOIL GAS CONCENTRATIONS

-  1.0 TO 5.0 µg/L
-  5.0 TO 50.0 µg/L
-  50.0 TO 500.0 µg/L



Phase Phase II FS Report OU-2A
Figure 1-9
Near Surface Soil Gas Results - PCE
Site 24 - VOC Source Area
MCAS, El Toro, California

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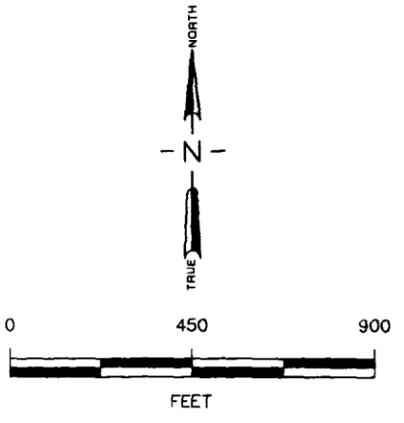


LEGEND

- BUILDING OR PAD
- STREAMS OR WASH
- IMPROVED ROADS
- UNIMPROVED ROADS
- RAILROAD
- PHASE II UNIT BOUNDARY
- FENCE
- BASE BOUNDARY
- STORM DRAIN CONVEYANCE SYSTEM (AGUA CHINO WASH)
- STORM DRAIN CONVEYANCE SYSTEM (BEE CANYON WASH)
- INDUSTRIAL WASTEWATER SEWER LINE
- UNDERGROUND STORAGE TANK (USTs)
- PRE-1975 WASTE OIL UST INSTALLED PRIOR TO TERMINATION OF USE OF SOLVENTS AND CLOSE TO SHALLOW SOIL-GAS PLUME
- PHASE I SOIL GAS SAMPLE LOCATION

SOIL GAS CONCENTRATIONS

- 1.0 TO 5.0 µg/L
- 5.0 TO 50.0 µg/L
- 50.0 TO 500.0 µg/L



Phase Phase II FS Report OU-2A
Figure 1-10
 Near Surface Soil Gas Results - 1,1-DCE
 Site 24 - VOC Source Area

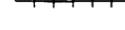
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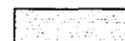
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 File No: 073U0799
 Job No: 22214-073
 Rev No: B



LEGEND

-  BUILDING OR PAD
-  STREAMS OR WASH
-  IMPROVED ROADS
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-  RAILROAD
-  PHASE II UNIT BOUNDARY
-  FENCE
-  BASE BOUNDARY
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-  STORM DRAIN CONVEYANCE SYSTEM (BEE CANYON WASH)
-  INDUSTRIAL WASTEWATER SEWER LINE
-  UNDERGROUND STORAGE TANK (USTs)
-  PRE-1975 WASTE OIL UST INSTALLED PRIOR TO TERMINATION OF USE OF SOLVENTS AND CLOSE TO SHALLOW SOIL-GAS PLUME
-  PHASE I SOIL GAS SAMPLE LOCATION

SOIL GAS CONCENTRATIONS

-  1.0 TO 5.0 µg/L
-  5.0 TO 50.0 µg/L

**Phase Phase II FS Report OU-2A
Figure 1-11**

**Near Surface Soil Gas Results - CT
Site 24 - VOC Source Area**

MCAS, El Toro, California

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	File No: 073U0800
Job No: 22214-073	
Rev No: B	